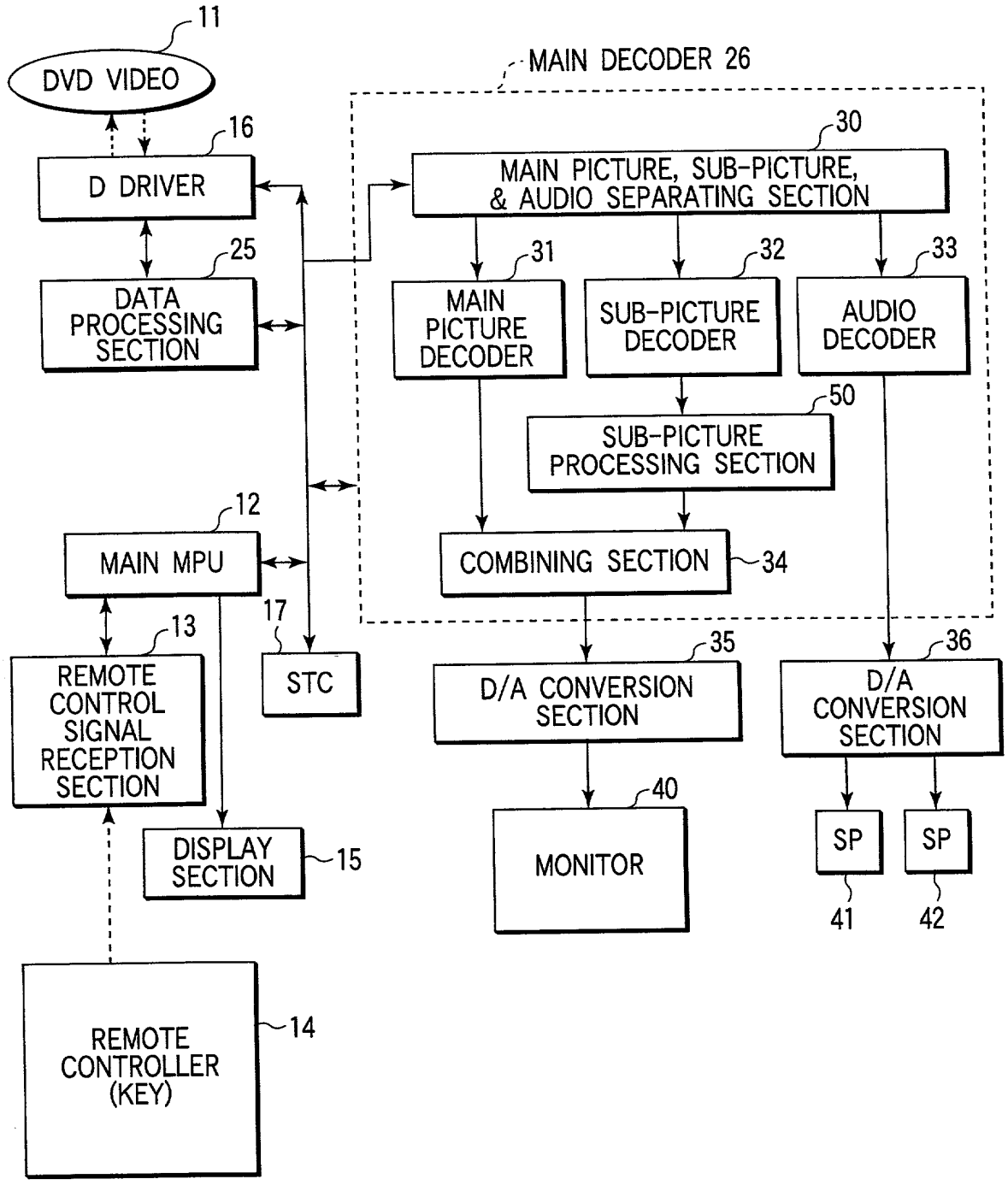

11
DVD VIDEO
MAIN DECODER 26
16
D DRIVER
30
MAIN PICTURE, SUB-PICTURE, & AUDIO SEPARATING SECTION
25
DATA PROCESSING SECTION
31
MAIN PICTURE DECODER
32
SUB-PICTURE DECODER
33
AUDIO DECODER
50
SUB-PICTURE PROCESSING SECTION
12
MAIN MPU
COMBINING SECTION
34
17
13
REMOTE CONTROL SIGNAL RECEPTION SECTION
STC
35
D/A CONVERSION SECTION
36
D/A CONVERSION SECTION
40
MONITOR
SP
SP
41
42
DISPLAY SECTION
15
REMOTE CONTROLLER (KEY)
14

FIG. 1

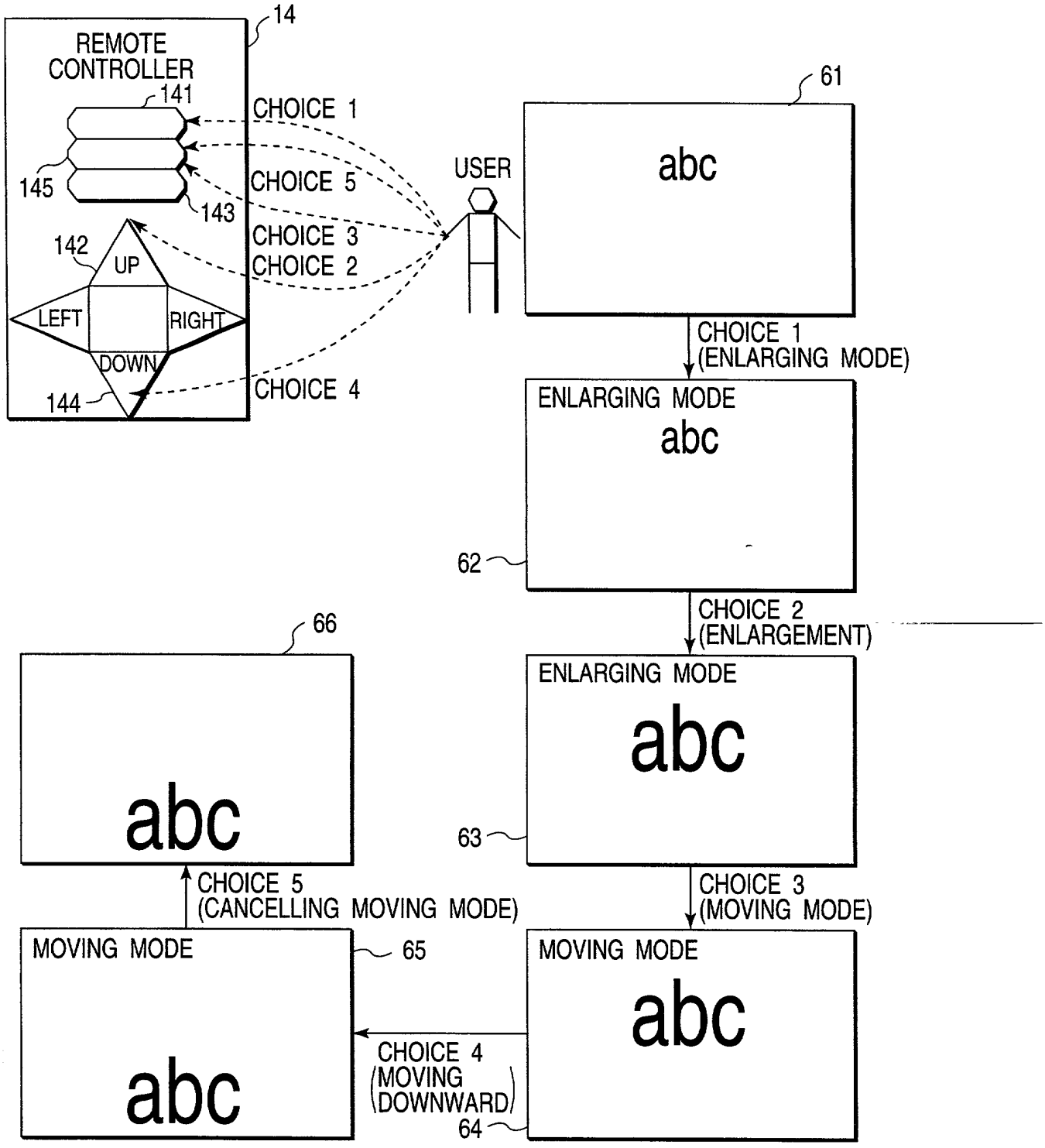

REMOTE CONTROLLER
14
141
145
143
142
UP
LEFT
RIGHT
DOWN
144
CHOICE 1
CHOICE 5
CHOICE 3
CHOICE 2
CHOICE 4
USER
61
abc
CHOICE 1
(ENLARGING MODE)
ENLARGING MODE
abc
62
CHOICE 2
(ENLARGEMENT)
66
abc
ENLARGING MODE
abc
63
CHOICE 5
(CANCELLING MOVING MODE)
CHOICE 3
(MOVING MODE)
MOVING MODE
abc
65
MOVING MODE
abc
CHOICE 4
(MOVING
DOWNWARD)
64

FIG. 2

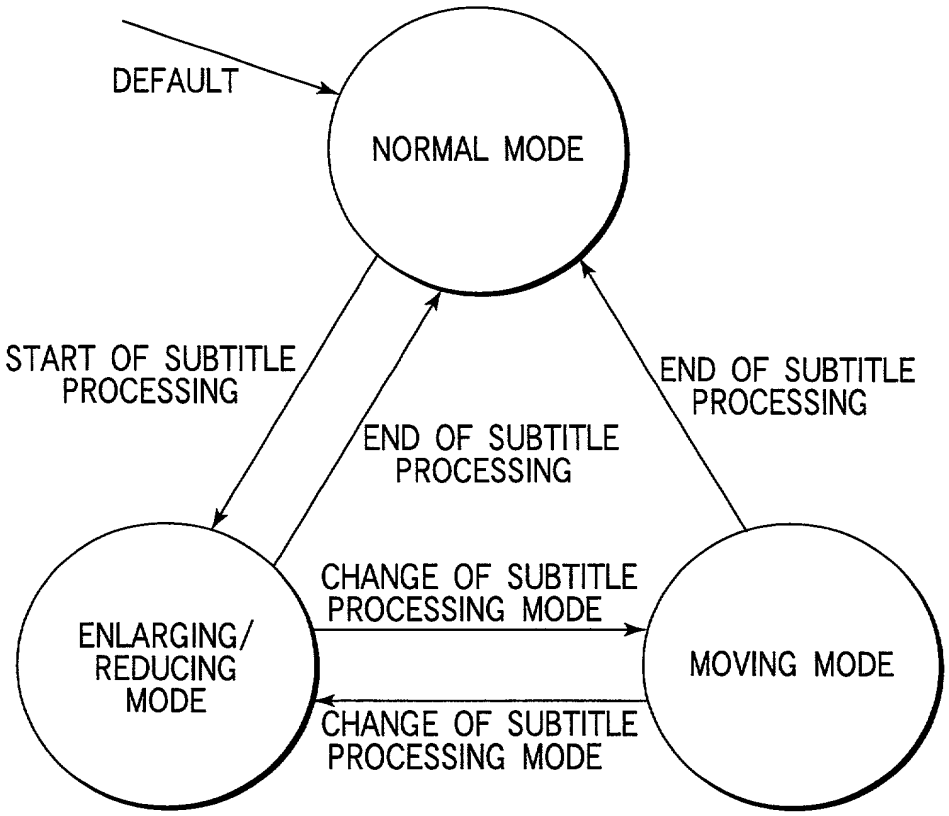

DEFAULT
NORMAL MODE
START OF SUBTITLE PROCESSING
END OF SUBTITLE PROCESSING
END OF SUBTITLE PROCESSING
CHANGE OF SUBTITLE PROCESSING MODE
ENLARGING/ REDUCING MODE
MOVING MODE
CHANGE OF SUBTITLE PROCESSING MODE

FIG. 3

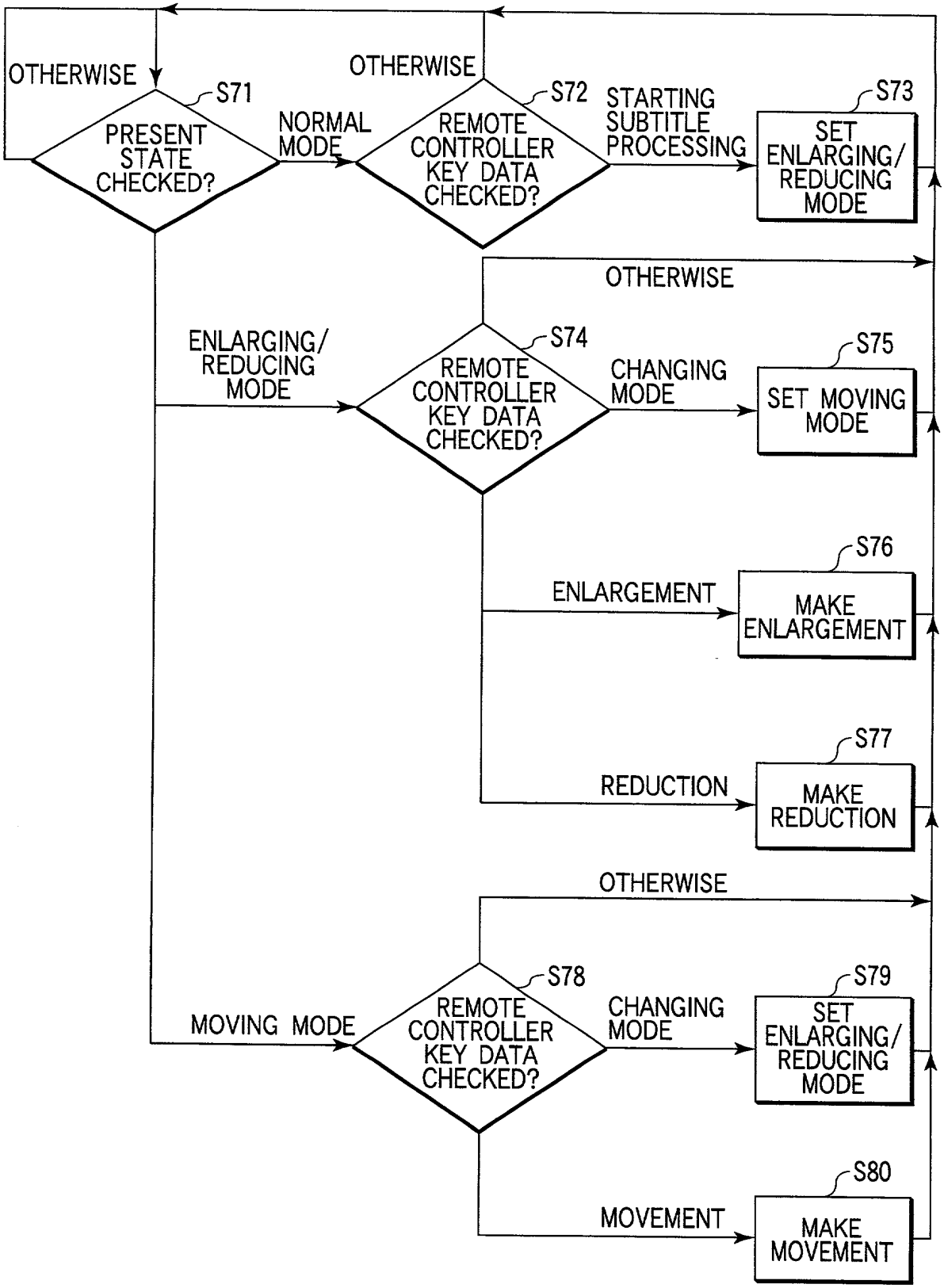

OTHERWISE
S71
PRESENT STATE CHECKED?
NORMAL MODE
OTHERWISE
S72
REMOTE CONTROLLER KEY DATA CHECKED?
STARTING SUBTITLE PROCESSING
S73
SET ENLARGING/ REDUCING MODE
OTHERWISE
ENLARGING/ REDUCING MODE
S74
REMOTE CONTROLLER KEY DATA CHECKED?
CHANGING MODE
S75
SET MOVING MODE
S76
ENLARGEMENT
MAKE ENLARGEMENT
S77
REDUCTION
MAKE REDUCTION
OTHERWISE
MOVING MODE
S78
REMOTE CONTROLLER KEY DATA CHECKED?
CHANGING MODE
S79
SET ENLARGING/ REDUCING MODE
S80
MOVEMENT
MAKE MOVEMENT

FIG. 4

PUBLISHED UNDER

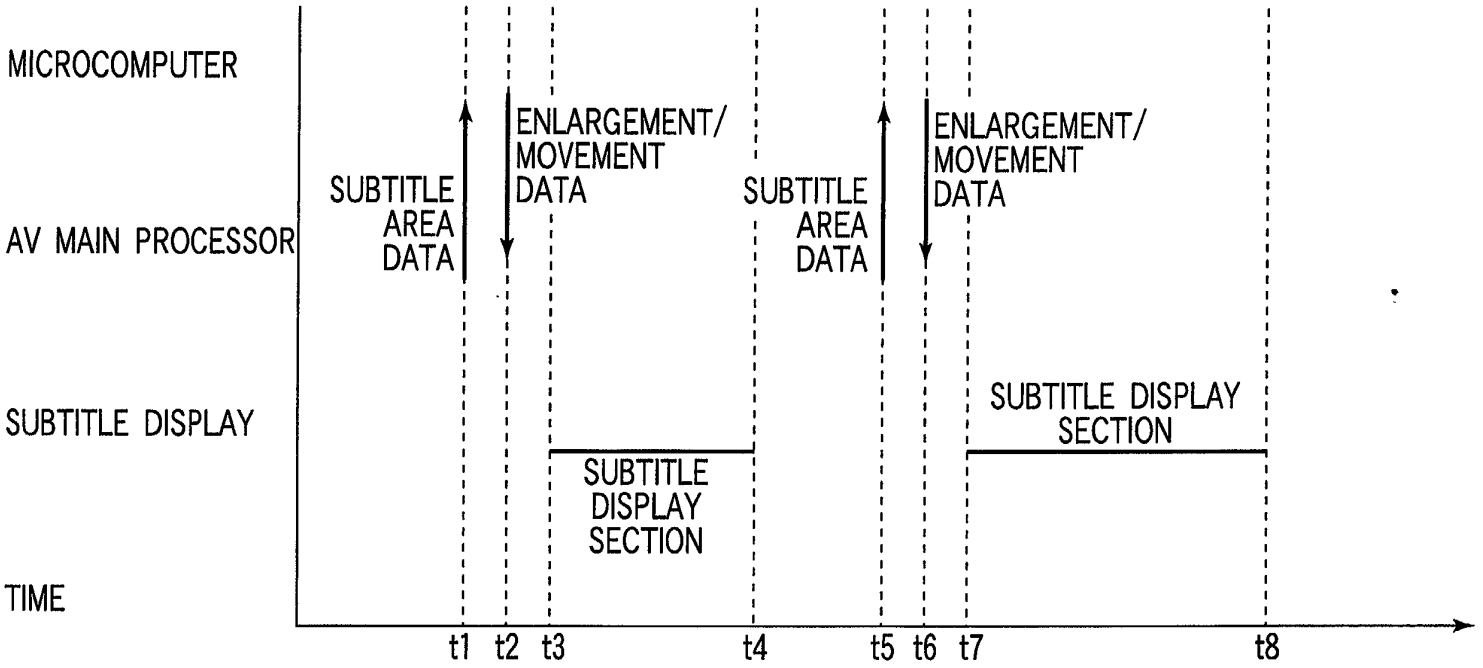


FIG. 5

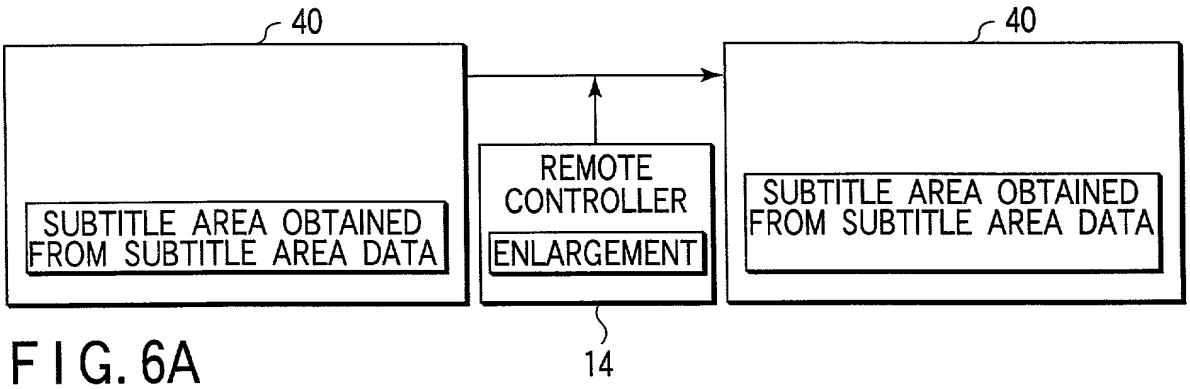


FIG. 6A

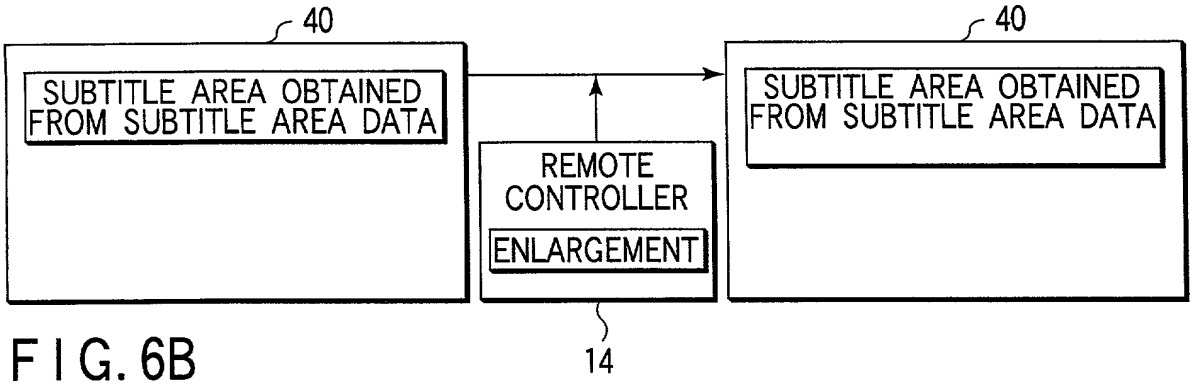


FIG. 6B

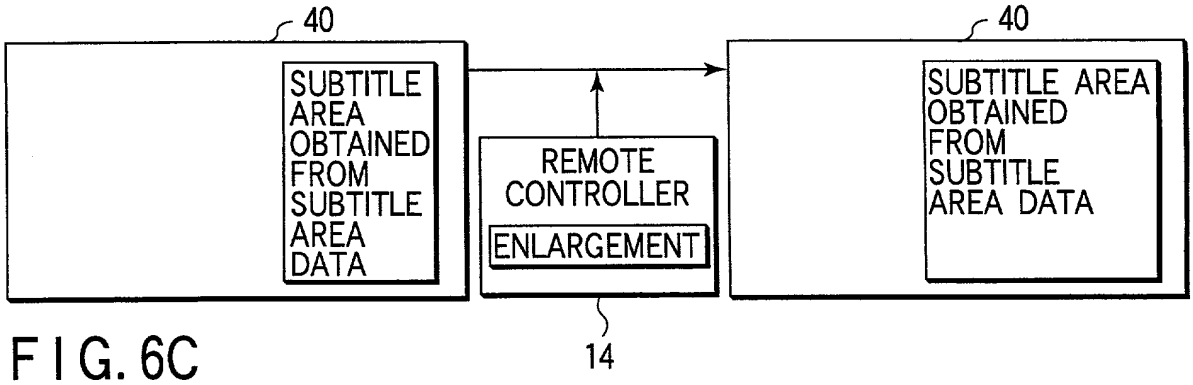


FIG. 6C

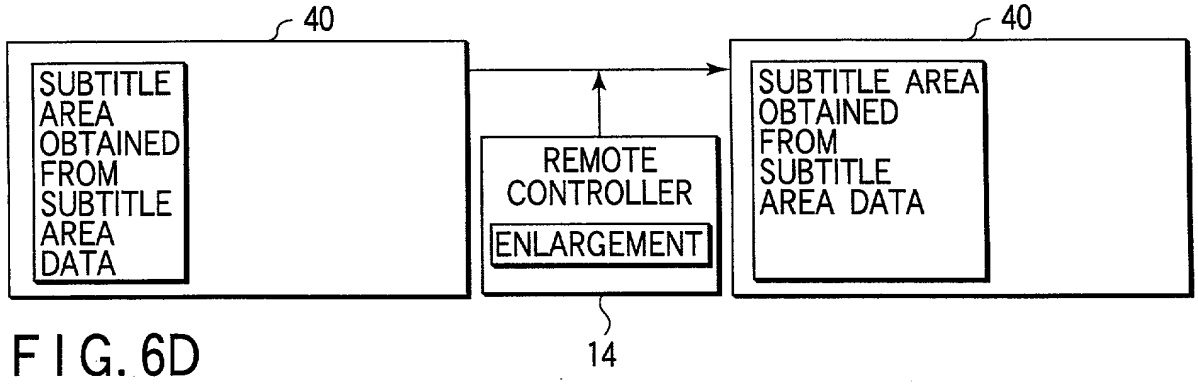
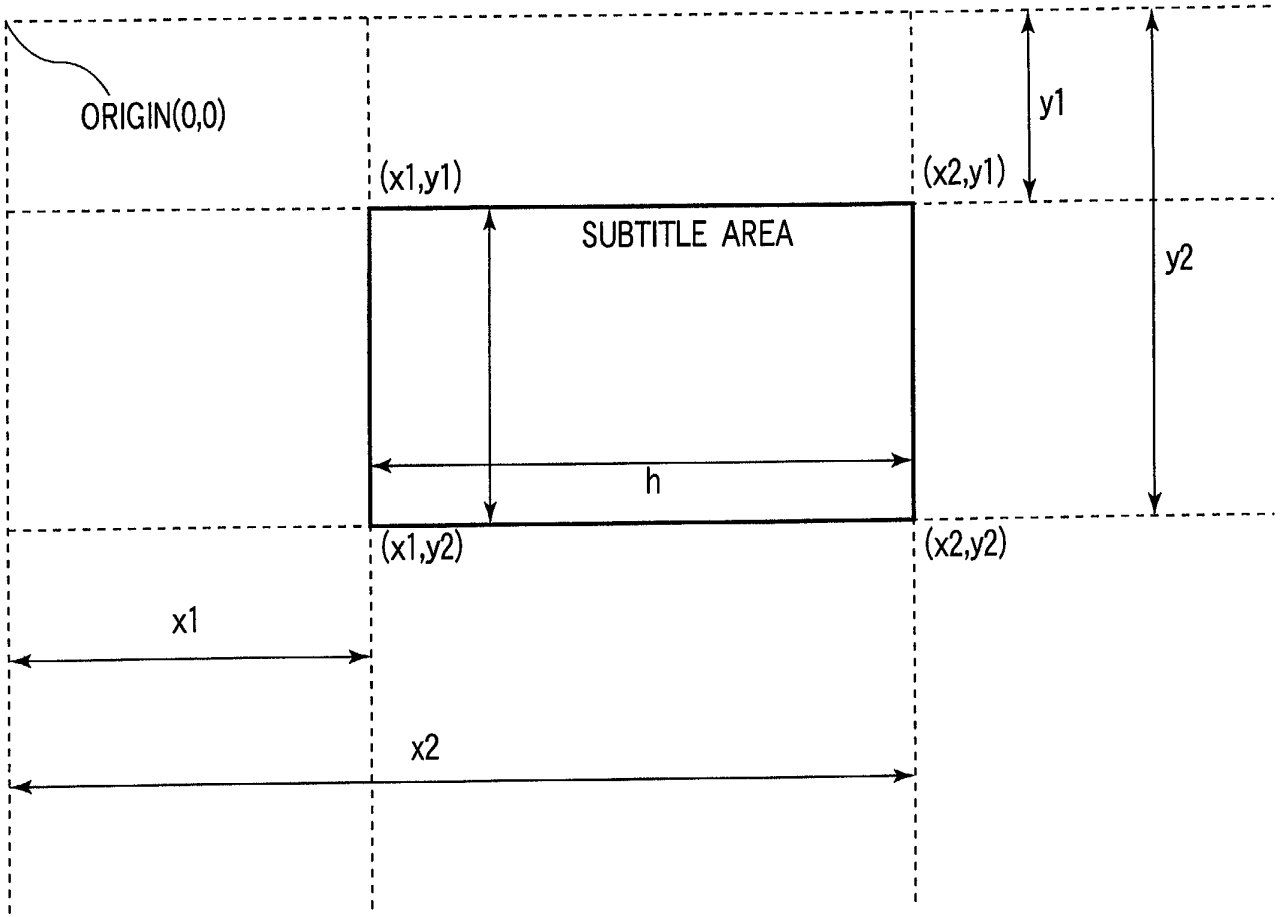


FIG. 6D



LET SUBTITLE AREA DATA BE x1, x2, y1, y2 IN THE FIGURE

FIG. 7

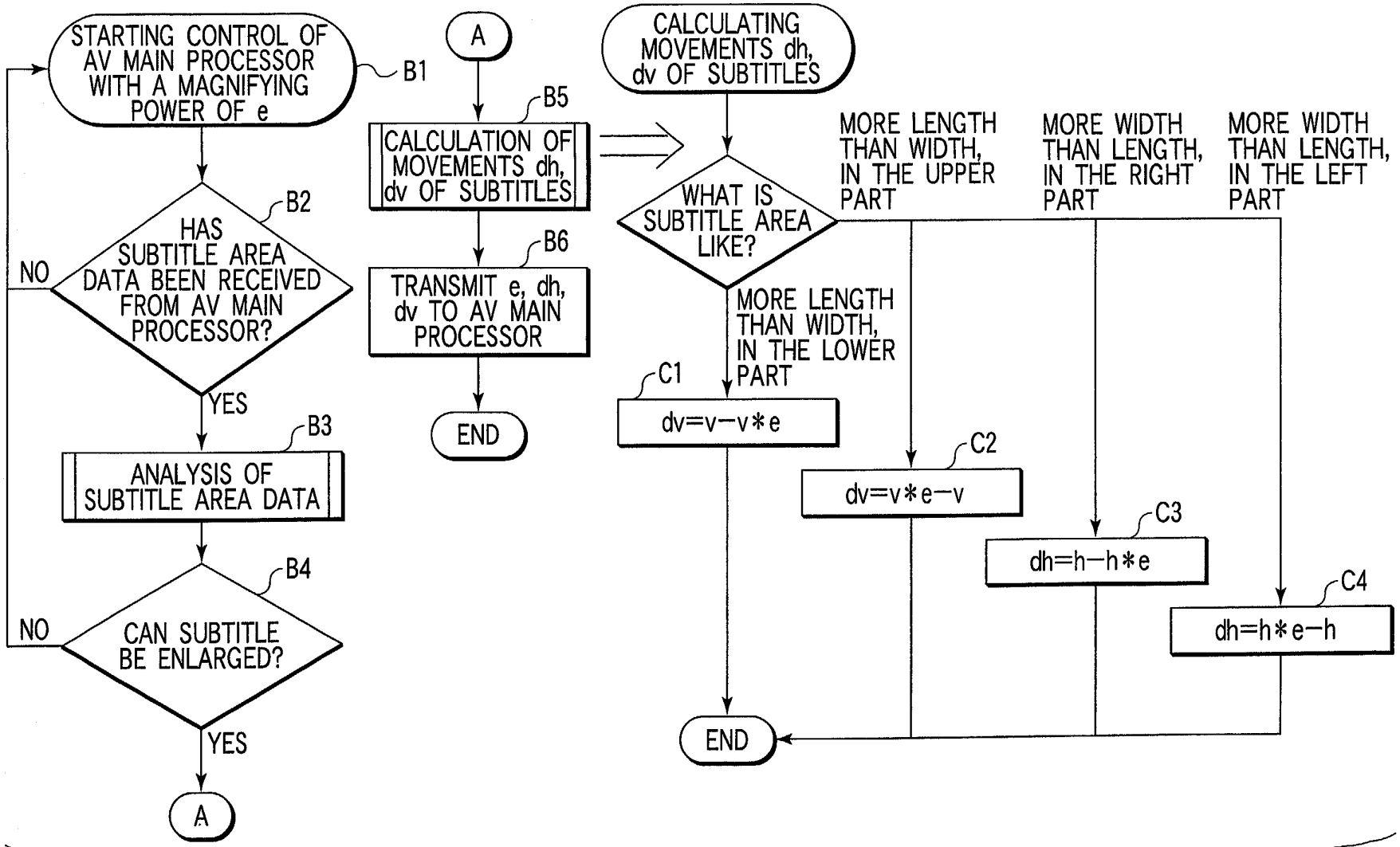
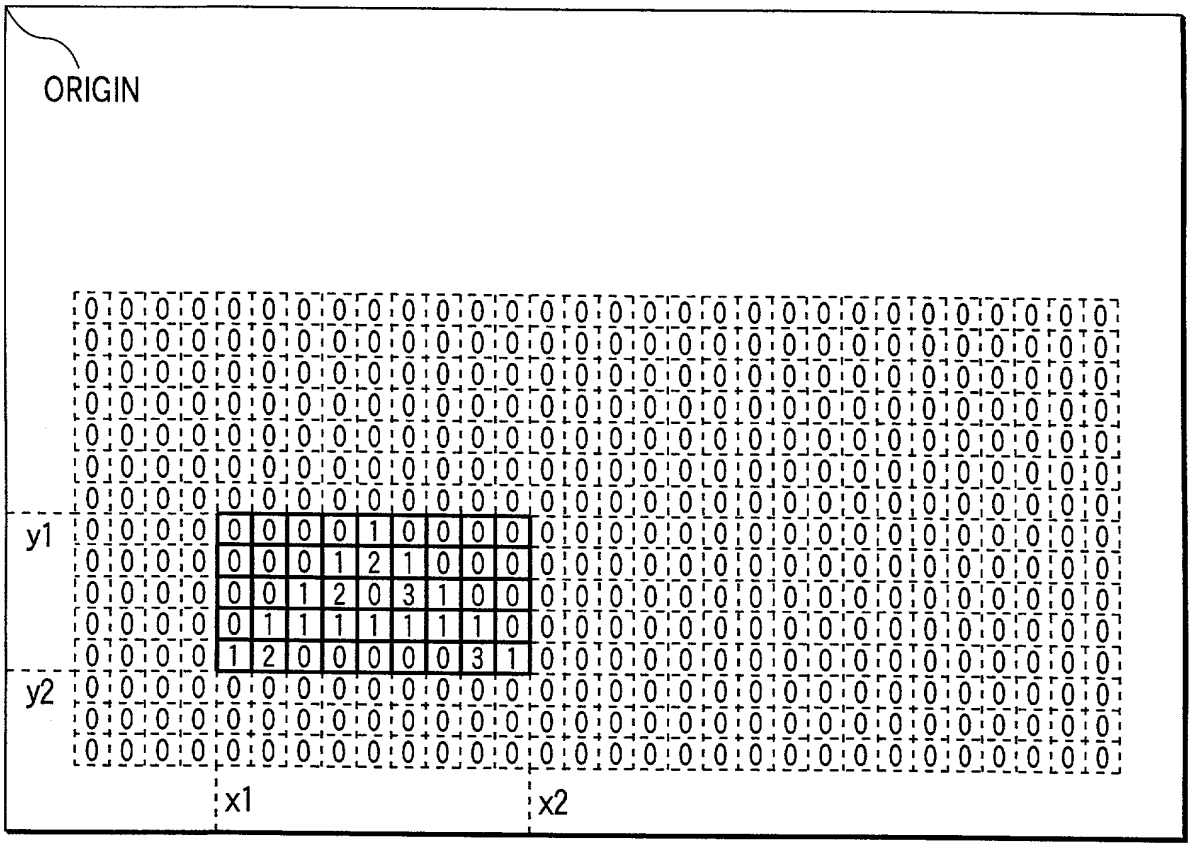

STARTING CONTROL OF AV MAIN PROCESSOR WITH A MAGNIFYING POWER OF e
B1
HAS SUBTITLE AREA DATA BEEN RECEIVED FROM AV MAIN PROCESSOR?
B2
NO
YES
ANALYSIS OF SUBTITLE AREA DATA
B3
CAN SUBTITLE BE ENLARGED?
B4
NO
YES
A
A
CALCULATION OF MOVEMENTS dh, dv OF SUBTITLES
B5
TRANSMIT e, dh, dv TO AV MAIN PROCESSOR
B6
END
CALCULATING MOVEMENTS dh, dv OF SUBTITLES
WHAT IS SUBTITLE AREA LIKE?
MORE LENGTH THAN WIDTH, IN THE UPPER PART
MORE WIDTH THAN LENGTH, IN THE RIGHT PART
MORE WIDTH THAN LENGTH, IN THE LEFT PART
MORE LENGTH THAN WIDTH, IN THE LOWER PART
C1
dv=v−v*e
C2
dv=v*e−v
C3
dh=h−h*e
C4
dh=h*e−h
END

FIG. 8



ENLARGEMENT OF SUBTITLE DATA

FIG. 9A

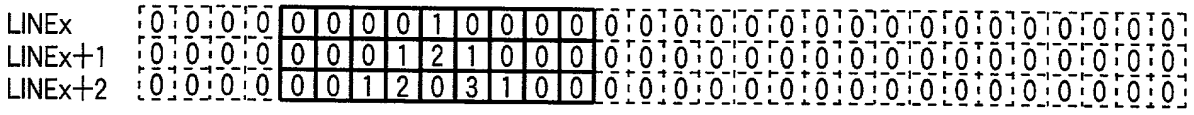


FIG. 9B

ENLARGEMENT

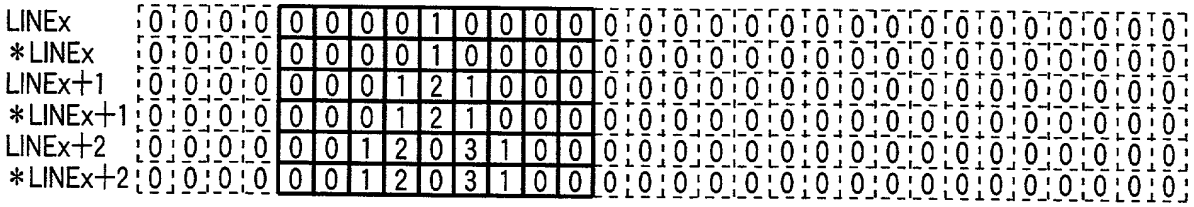


FIG. 9C

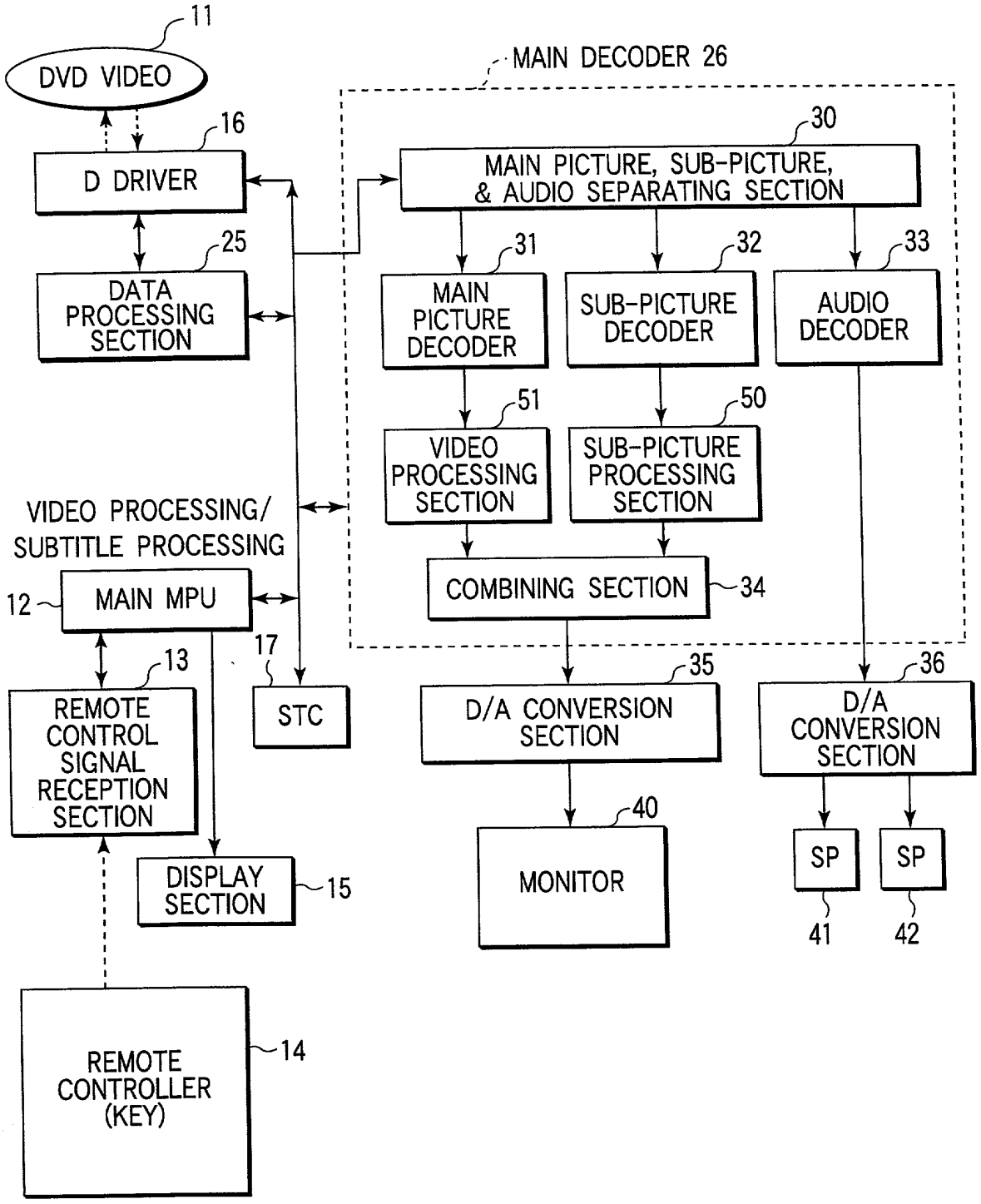

11
DVD VIDEO
MAIN DECODER 26
16
D DRIVER
30
MAIN PICTURE, SUB-PICTURE, & AUDIO SEPARATING SECTION
25
DATA PROCESSING SECTION
31
MAIN PICTURE DECODER
32
SUB-PICTURE DECODER
33
AUDIO DECODER
51
VIDEO PROCESSING SECTION
50
SUB-PICTURE PROCESSING SECTION
VIDEO PROCESSING/ SUBTITLE PROCESSING
12
MAIN MPU
COMBINING SECTION
34
17
STC
13
REMOTE CONTROL SIGNAL RECEPTION SECTION
35
D/A CONVERSION SECTION
36
D/A CONVERSION SECTION
40
MONITOR
SP
SP
41
42
DISPLAY SECTION
15
REMOTE CONTROLLER (KEY)
14

FIG. 10

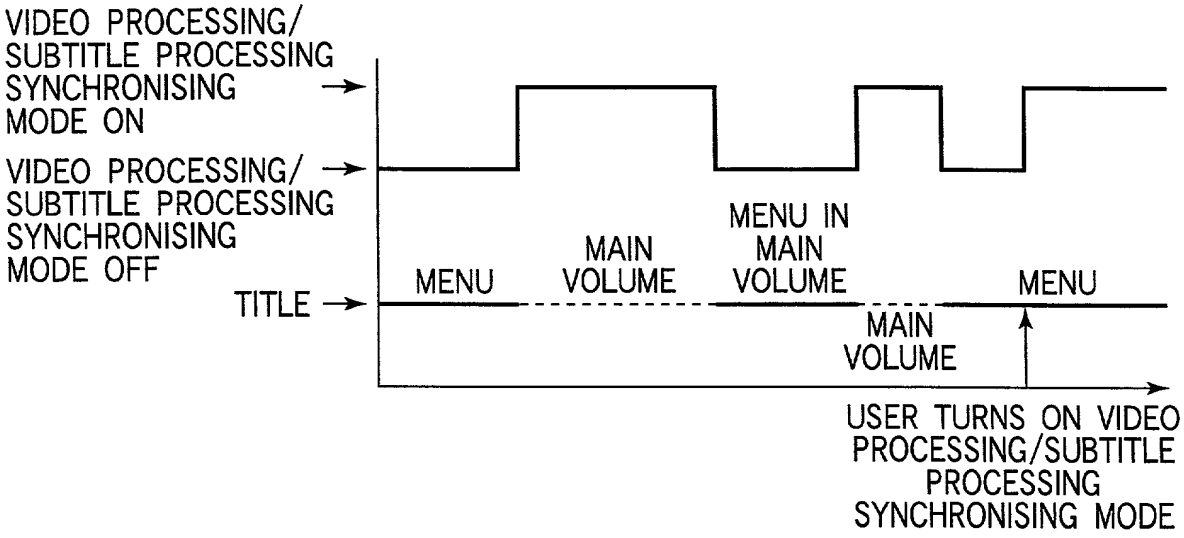

VIDEO PROCESSING/
SUBTITLE PROCESSING
SYNCHRONISING
MODE ON
VIDEO PROCESSING/
SUBTITLE PROCESSING
SYNCHRONISING
MODE OFF
TITLE
MENU
MAIN
VOLUME
MENU IN
MAIN
VOLUME
MENU
MAIN
VOLUME
USER TURNS ON VIDEO
PROCESSING/SUBTITLE
PROCESSING
SYNCHRONISING MODE

FIG. 11

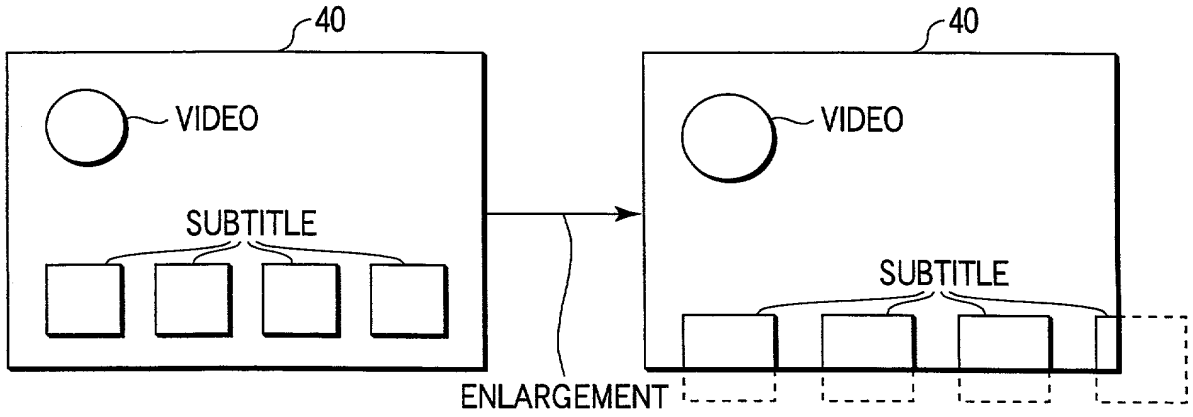

40
VIDEO
SUBTITLE
40
VIDEO
SUBTITLE
ENLARGEMENT

FIG. 12

PUBLISHED UNDER

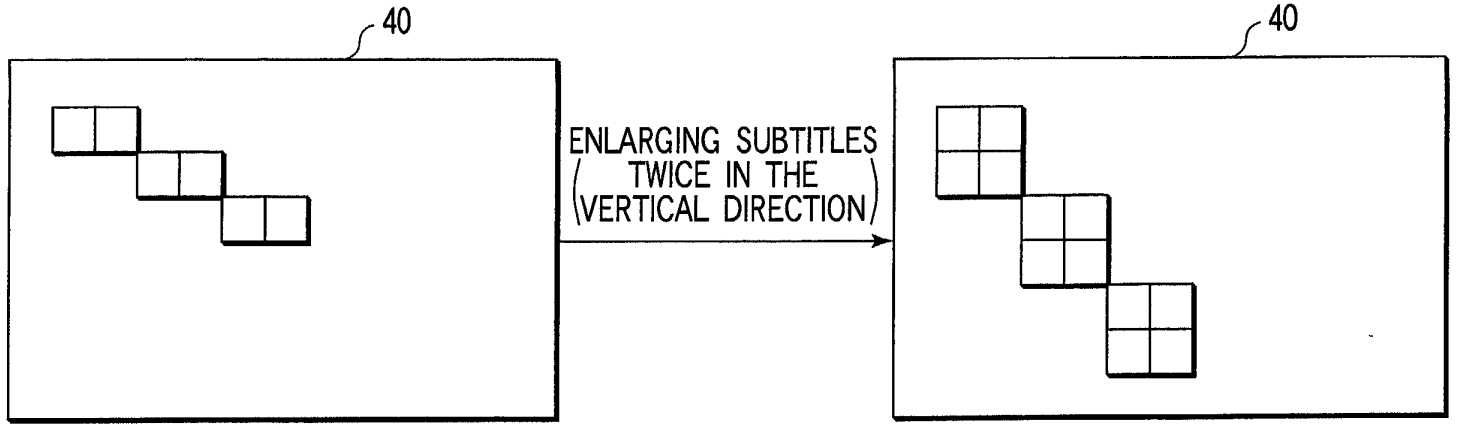


FIG. 13A

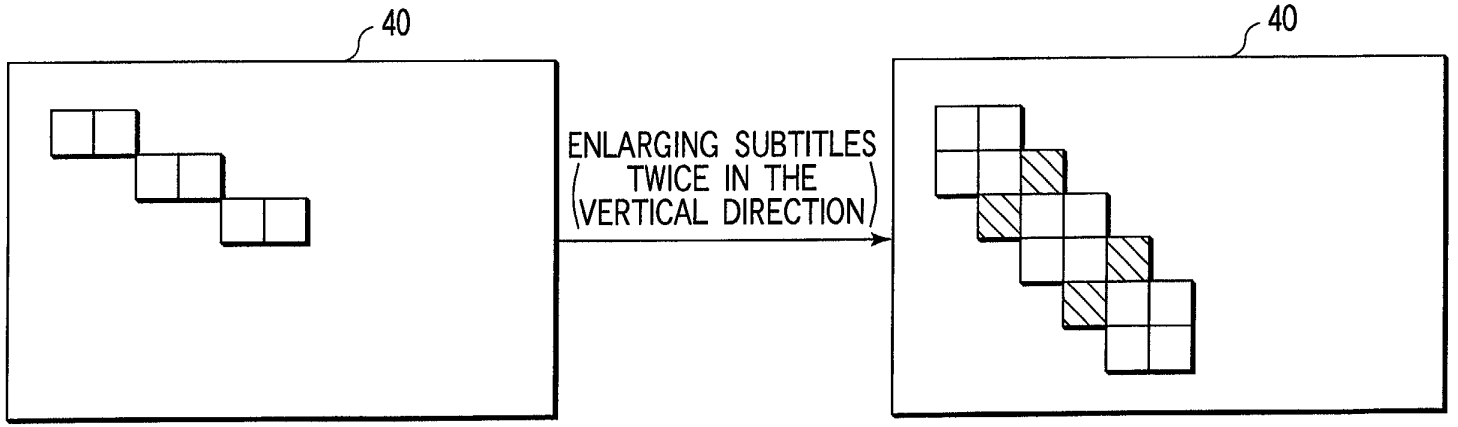


FIG. 13B

FIG. 14A

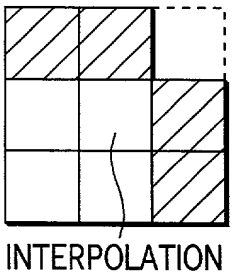


FIG. 14B

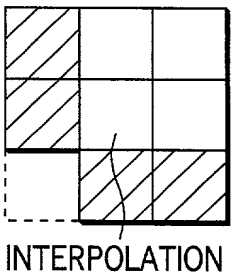


FIG. 14C

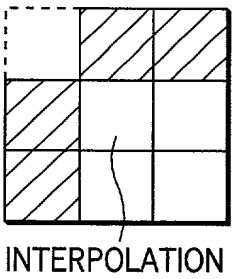
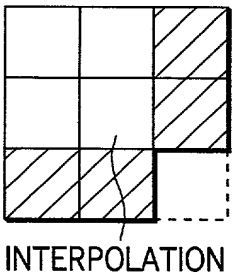


FIG. 14D



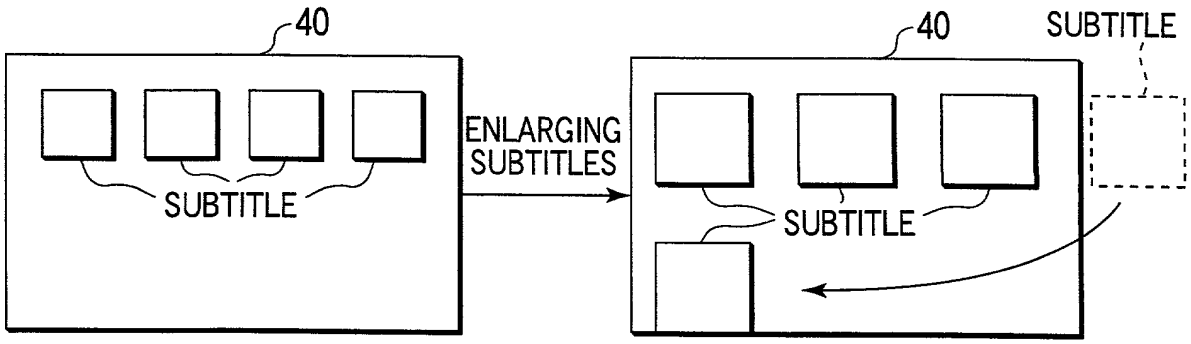

40
SUBTITLE
ENLARGING
SUBTITLES
40
SUBTITLE
SUBTITLE

FIG. 15

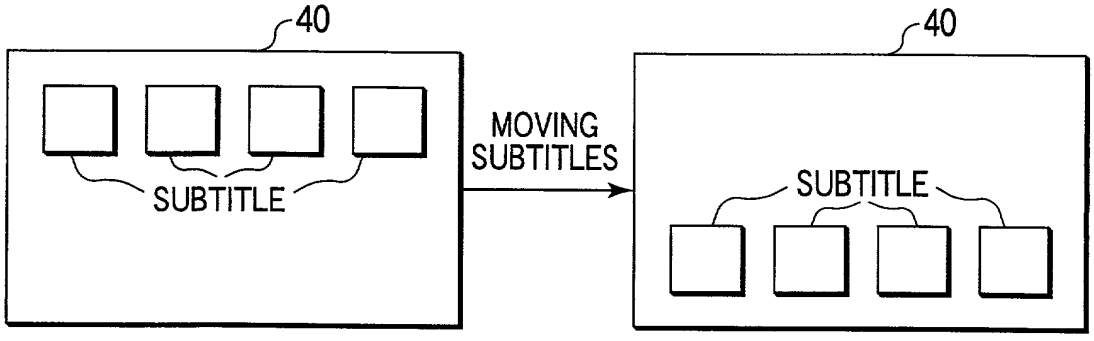

40
SUBTITLE
MOVING
SUBTITLES
40
SUBTITLE

FIG. 16